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10/568,636	02/16/2006	Ferran Laguarta Bertran	P257153	2654

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EXAMINER	
ALLI, IYABO	

ART UNIT	PAPER NUMBER
2877	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,636	LAGUARTA BERTRAN ET AL.	
	Examiner	Art Unit	
	IYABO S. ALLI	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/16/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claim 1, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Objections

3. Claim 1 is objected to because of the following informalities: the word “centring” should be replaced with --centering--. Appropriate correction is required.

4. Claim 7 is objected to because of the following informalities: On line 6, the words "an an" should be replaced by --and an--. Appropriate correction is required.

5. Claim 16 is objected to because of the following informalities: On line 2, the phrase “918)” should be removed from the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims **1-10 and 15-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Harris et al.** (3,806,252) in view of **Lauer** (6,525,875). (‘**Harris**’)

As to claim 1, discloses arranging the object to be analysed on a microscope slide **608** with the greater diameter opening facing the illumination means **601** (Column 7, lines 5-7 and Figs. 2 and 6); centering one of the orifices of the object to be analysed in the field of view of the observation means (Column 7, lines 5-10 and Fig. 6); bringing into focus by means of wide-field illumination the smaller diameter opening of the orifice to be analysed (Column 9, lines 42-29); measuring the diameter of the orifice as well as major defects such as the absence of an orifice or large-scale deformations (Column 21, lines 39-44); modifying the focus plane (z.sub.i) of the inner part of the orifice of the object by changing it to another focus plane (z.sub.i+1) (Column 9, lines 55-58 and Fig. 2); measuring the contour of the orifice in the focus plane (z.sub.i+1) in order to determine the inner topography of the orifice by projecting a sequence of patterns and measuring the position of the points of the contour of the orifice when the images of the projected pattern and their reflection on the inner walls of the orifice are superimposed on the plane of the camera **613** (Column 12, lines 3-9 and Fig. 7).

Harris *fails to disclose* repeating the above process for a number of planes (z.sub.i . . . z.sub.n) inside the orifice; processing the data for the contours measured in the different planes to obtain a three-dimensional geometrical representation of the inner topography of the orifice, as well as its characteristic parameters (maximum and minimum diameters of the orifice, slope of the wall of the orifice, deviations from nominal figure, position of the axis of the orifice, etc.).

However, **Lauer** teaches repeating the above process for a number of planes (z.sub.i . . . z.sub.n) inside the orifice (Column 64, lines 50-54); processing the data for the contours measured in the different planes to obtain a three-dimensional geometrical representation of the inner topography of the orifice, as well as its characteristic parameters (maximum and minimum diameters of the orifice, slope of the wall of the orifice, deviations from nominal figure, position of the axis of the orifice, etc (Column , lines).

It would have been obvious to one skilled in the art at the time of the invention to include the steps of repeating and processing of **Lauer** in the of **Harris** in order to be able to effectively provide measurements over a period of time and over multiple areas, reducing the cycle time of the system and allowing enough data for calibration purposes.

As to claim 2, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 1 above **in addition Harris** discloses wherein said sequence of patterns are circular patterns of a given, increasing radius (Figs. 1 and 2).

As to claim 3, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 1 above **in addition Harris** discloses wherein the points of the contour on the focus plane (z.sub.i) are measured using a cylindrical coordinate system with a resolution of 360-720 points measured along the length of the contour of the orifice **102** (Column 5, lines 59-64)..

As to claim 4, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 1 above **in addition Harris** discloses wherein a series of images ranging from 10 to 25 in number is acquired in order to obtain the points measured along the contour of the orifice (Column 21, lines 58-61).

As to claim 5, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein the spacing between focus planes (z.sub.i) ranges from 1 to 10 .mu.m.

However, **Lauer** teaches the spacing between focus planes (z.sub.i) ranges from 1 to 10 .mu.m. (Column 69, lines 27-29).

It would have been obvious to one skilled in the art at the time of the invention to include the spacing of **Lauer** in the determination method of **Harris** in order to enhance the accuracy of the resulting data of the object under test when there are intervals between the plane, so bunching does not occur which will in turn, negatively affecting the validity of the resulting data.

As to claim 6, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 1 above **except for** wherein the step of modifying the focus plane (z.sub.i) of the object being analysed by another focus plane (z.sub.i+1) is repeated by a given number of times to obtain values in just as many focus planes (z.sub.n) within the orifice of the object, depending on the thickness of the object being analysed and the requirements of the analysis parameters.

However, **Lauer** teaches the step of modifying the focus plane (z.sub.i) of the object being analysed by another focus plane (z.sub.i+1) is repeated by a given number

of times to obtain values in just as many focus planes (z.sub.n) within the orifice of the object, depending on the thickness of the object being analysed and the requirements of the analysis parameters (Column 134, lines 27-31).

It would have been obvious to one skilled in the art at the time of the invention to include the modifying step of **Lauer** in the determination method of **Harris** in order to be able to effectively provide measurements over a period of time and over multiple areas, reducing the cycle time of the system and allowing enough data for calibration purposes.

As to claim 7, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 1 above **in addition Harris** discloses wherein and in particular for measuring micrometric tapered nozzles and other, similar devices, the apparatus being characterized in that it comprises illumination means **601**, observation means and computer processing mean **1009** (Fig. 13), said illumination means comprising a microscope objective associated with said illumination means, a light source **601**, a pattern representation system, and an optical system associated with the illumination means **601**; and said observation means comprising a microscope objective associated with the observation means, an optical system associated with the observation means, and at least one camera **613** (Figs. 6 and 7).

As to claim 8, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **in addition Harris** discloses wherein it includes a mirror **703**

that deviates the light emitted **702** from said light source **701** at a certain angle towards said optical system (Column 12, lines 43-46 and Fig. 7).

As to claim 9, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **in addition Harris** discloses wherein the angle of deviation of the light **704** caused by the mirror **703** is 90.degree. (Fig. 7).

As to claim 10, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein the objective associated with the illumination means is an 100.times. magnification SLWD objective (super-long working distance), whereas the objective associated with the observation means is a 50.times. magnification SLWD objective (super-long working distance), said camera being a 1/3" camera.

However, **Lauer** teaches wherein the objective associated with the illumination means is an 100.times. magnification SLWD objective (super-long working distance), whereas the objective associated with the observation means is a 50.times. magnification SLWD objective (super-long working distance), said camera being a 1/3" camera (Column 69, lines 24-29 and Fig. 25).

It would have been obvious to one skilled in the art at the time of the invention to include the objective means of **Lauer** in the topography determination apparatus of **Harris** in order to provide a suitable illumination means that is compatible with the camera means, enhancing the accuracy of the resulting data of the object under test.

As to claim 15, Harris in view of discloses all of the claimed limitations as applied to Claim 7 above **in addition Harris** discloses wherein said light source **701** is a laser and the pattern on the inner surface of the orifice is generated using a scanner (Column 11, lines 65-67 and Fig. 7).

As to claim 16, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** an additional camera, said apparatus further including a light beam splitter.

However, **Lauer** teaches an additional camera **2239**, said apparatus further including a light beam splitter **2228** (Column 75, lines 43-45 and Fig. 27).

As to claim 17, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein said camera or cameras are CCD cameras.

However, **Lauer** teaches wherein said camera or cameras **2229 & 2239** are CCD cameras (Column 76, lines 29-30 and Fig. 27).

And as to claim 18, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein said camera or cameras are CMOS cameras.

However, **Lauer** teaches wherein said camera or cameras **2229 & 2239** are CMOS cameras (Fig. 27).

As to claims 16-18 above, it would have been obvious to one skilled in the art at the time of the invention to use any suitable camera device that can transfer captured data to a processing system, producing the desired parameters of the object under test.

8. Claims **11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Harris et al.** (3,806,252) in view of **Lauer** (6,525,875) as applied to claim 7 above, and further in view of **Krause** (5,587,832). ('**Harris**')

As to claim 11, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein said pattern representation system is controlled by a computer that forms part of said computer processing means and allows to both visualise a wide-field illumination and to generate circular patterns of different diameters, said patterns being projected by means of said objective with said optical system inside the orifice of the object being analysed.

However, **Krause** teaches said pattern representation system is controlled by a computer **16** that forms part of said computer processing means and allows to both visualise a wide-field illumination and to generate circular patterns of different diameters, said patterns being projected by means of said objective with said optical system inside the orifice of the object being analysed (Column 5, lines 25-31 and Fig. 1).

It would have been obvious to one skilled in the art at the time of the invention to use the computer of **Krause** in the determining apparatus of **Harris** in view of **Lauer** in

order to achieve all the steps involved with determining the dimensions of the object under test, reducing the manual labor from the user of the system.

As to claim 12, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein said pattern representation system is a liquid crystal microdisplay (LCD).

However, **Krause** teaches wherein said pattern representation system is a liquid crystal microdisplay (LCD) **14** (Column 4, lines 43-49 and Fig. 1).

As to claim 13, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein said pattern representation system is a liquid-crystal-on-silicon (LCOS) microdisplay, and also includes a light beam splitter.

However, **Krause** teaches said pattern representation system is a liquid-crystal-on-silicon (LCOS) microdisplay **14**, and also includes a light beam splitter **22** (Column 4, lines 43-49 and Fig. 1).

As to claims 12 and 13 above, it would have been obvious to one skilled in the art at the time of the invention to use any suitable pattern representation means that is able to produce a pattern on the object under test to measure the different planes of the orifice.

And as to claim 14, Harris in view of **Lauer** discloses all of the claimed limitations as applied to Claim 7 above **except for** wherein said light source emits a broadband spectrum of light.

However, **Krause** teaches said light source **18** emits a broadband spectrum of light (Column 2, lines 56-59 and Fig. 1).

It would have been obvious to one skilled in the art at the time of the invention to know that a white light is considered a broadband spectrum light and can be substituted for any suitable source that will produce a pattern on the object under test (disclosed in applicant's Specification on page 2, Paragraph [0030])

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IYABO S. ALLI whose telephone number is (571)270-1331. The examiner can normally be reached on M-Thurs. 7:30a- 5pm, 1st F-OFF & 2nd F- 7:30a-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IYABO S. ALLI
Examiner
Art Unit 2877
February 6, 2008

/L. G. Lauchman/
Primary Examiner, Art Unit 2877